the semiconductor regions **4** and the zones **5**, is depleted of charge carriers. The semiconductor regions **4** then remain at the "punch-through" voltage and, as the voltage U_{DS} increases further, the space charge zone starts to extend again beyond the horizontal plane formed by the semiconductor regions **4**. In this case, the section between the semiconductor regions **4** acts as a junction FET and limits the voltage on the semiconductor body between the cells. The thin or filiform zone **18** enables the p^+-conducting semiconductor regions to be rapidly discharged after the switch-on of the semiconductor component. Filling the trench **17** with the insulating material opens up a preferred possibility for fabricating structures in which the p^+-conducting semiconductor regions or correspondingly n^+-conducting semiconductor regions in a p-conducting semiconductor region are connected to the source electrode via filiform zones **18**. It goes without saying that "filiform" zones are to be understood also as zones having a strip-type or parallelepipedal cross section.

FIG. **9** shows a further exemplary embodiment of the semiconductor component according to the invention, in which, however, in contrast to the exemplary embodiment of FIG. **8**, the semiconductor region **3** has a strip-shaped structure. In other words, additional strip-shaped semiconductor regions **22** are incorporated into the semiconductor region **3**; they are n-doped like the rest of the semiconductor region **3** but have a higher doping concentration than this semiconductor region **15**. This higher doping concentration below the gate electrodes G makes it possible to achieve a further increase in the switching speed.

Instead of the strip-shaped semiconductor regions **22**, it is also possible to provide semiconductor regions **20** in the semiconductor region **3** which are likewise n-doped but have a higher doping concentration than the semiconductor region **3** (cf. FIG. **10**). Such semiconductor regions **20** may be provided above and below the plane formed by the semiconductor regions **4**. These semiconductor regions **20**, like the strip-shaped semiconductor regions **22**, also contribute to increasing the switching speed by virtue of their higher doping concentration.

In an exemplary embodiment shown in FIG. **11**, in contrast to the semiconductor component of FIG. **8**, a surface region **21** of the semiconductor region **3** is more highly n-doped than the rest of the semiconductor region **3**. Such a structure is particularly simple to fabricate, since the regions **21** can readily be provided with the higher dopant concentration, for example through diffusion or epitaxy. This exemplary embodiment is also distinguished by an improved switching speed.

We claim:

1. A semiconductor component, comprising:

two electrodes;

a semiconductor body of a first conductivity type, said semiconductor body including a semiconductor region of the first conductivity type provided between said two electrodes, said semiconductor region of the first conductivity type being configured to sustain a reverse voltage applied to said electrodes;

semiconductor regions of a second conductivity type disposed in at least one plane extending essentially perpendicularly to a connecting line extending between said two electrodes, the second conductivity type being opposite to the first conductivity type;

a cell array disposed under one of said electrodes in said semiconductor body;

filiform semiconductor zones of the second conductivity type being doped more weakly than said semiconductor regions of the second conductivity type; and

at least some of said semiconductor regions of the second conductivity type being connected to said cell array via said filiform semiconductor zone of the second conductivity type.

2. A semiconductor component, comprising:

two electrodes;

a semiconductor body of a first conductivity type, said semiconductor body including a semiconductor region of the first conductivity type provided between said two electrodes, said semiconductor region of the first conductivity type being configured to sustain a reverse voltage applied to said electrodes;

semiconductor regions of a second conductivity type disposed in at leapt one plane extending essentially perpendicularly to a connecting line extending between said two electrodes, the second conductivity type being opposite to the first conductivity type;

a cell array disposed under one of said electrodes in said semiconductor body;

filiform semiconductor zones of the second conductivity type having a cross-sectional configuration selected from the group consisting of a cross-sectional configuration of a cylinder, a cross-sectional configuration of a parallelepiped, and a cross-sectional configuration of a strip; and

at least some of said semiconductor regions of the second conductivity type being connected to said cell array via said filiform semiconductor zones of the second conductivity type.

3. The semiconductor component according to claim **1**, wherein:

said semiconductor body has an edge region; and

given ones of said semiconductor regions of the second conductivity type are disposed in said edge region of said semiconductor body and are configured as floating semiconductor regions.

4. The semiconductor component according to claim **1**, including:

gate electrodes; and

said semiconductor region of the first conductivity type having relatively more weakly doped zones and relatively more heavily doped zones extending in a direction between said two electrodes such that said semiconductor regions of the second conductivity type are provided in said relatively more weakly doped zones, and such that said relatively more heavily doped zones extend in said semiconductor body substantially below said gate electrodes.

5. The semiconductor component according to claim **1**, wherein:

said semiconductor region of the first conductivity type has a first dopant concentration; and

doped zones of the first conductivity type are incorporated into said semiconductor region of the first conductivity type, said doped zones have a second dopant concentration greater than said first dopant concentration.

6. The semiconductor component according to claim **1**, including:

gate electrodes; and

said semiconductor region of the first conductivity type including surface zones disposed below said gate electrodes and doped more heavily than a remainder of said semiconductor region of the first conductivity type.

7. A semiconductor component, comprising:

two electrodes;